NEW SPECIES OF ARENARIA AND MINUARTIA

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These new species have been extracted from a thesis, Taxonomic studies in the Alsinoideae, submitted for the Degree of Ph.D. at Edinburgh University, 1960.

Arenaria antitaurica McNeill, sp. nov.

Ab A. uninervia McNeill cui proxima, foliis multo angustioribus, ramulis sterilibus sub anthesi bene evolutis (1-2-5 cm. longis) e caudiculis emergentibus distinguenda; in var. intermedia McNeill ad A. kotschyanam Fenzl approximat, sed margine foliorum ut videtur evenuloso differt.

Herba perennis, pulvinata. Planta ex toto pilis brevibus simplicibus vel glandulosis vestita. Caudex + gracilis, 1.25-1.75 mm, diam., in caudiculos fragiles numerosos foliis persistentibus mortuis superne praeditos transiens. Caudiculi 1-10 cm. longi, in ramulos steriles et floriferos abeuntes. Ramuli steriles sub anthesi 1-2.5 cm. longi, inferne foliis 1-3jugis ± remotis praediti, superne foliis 2-3-jugis rosulam formantibus. Ramuli floriferi ad 4 cm. longi, in parte inferiore jugis foliorum 2-4 + aequaliter disjunctis turiones novellos steriles e foliolis 2-4 fasciculatis compositos interdum subtendentibus praediti. Folia vena mediana prominenti et per laminam venis multis tenuissimis anastomosantibus, eis ad marginem non validius evolutis: folia matura superiora 8-10 mm. longa, lineari-lanceolata vel linearia, latitudine 5-7-plo longiora, sessilia, apice acuta vel etiam acuminata. Inflorescentia ad 2 cm. longa, floribus 1-2 instructa; bracteae anguste triangulares, ad 3 mm. longae, membranaceo-marginatae: pedicelli 5-15 mm. longi, Sepala vena mediana prominenti ad apicem percurrens, 3-5-4 mm. longa, in forma et textura gradatim inaequalia, venis lateralibus saepe 6 inconspicuis; sepalum extimum lanceolatum (latitudine 3-3.5-plo longius) acuminatum, leviter carinatum fere omnino herbaceum; sepalum intimum ovatum (latitudine c. duplo longius), acutum vel acuminatum, + prominenter carinatum, herbaceum sed late membranaceo-marginatum, ad basim sub-coriaceum. Petala ovata vel ovato-lanceolata, cuneata, 5-5.5 mm. longa et 2-2.25 mm. lata, apice obtusa. Stamina 10, exteriora basi glandulis minutissimis praedita: filamenta 4 mm. longa: antherae, 0.6 mm. longae. Ovarium globosum, 1.25 mm. diam.; styli 2.5 mm. longi. Capsula 3-3.5 mm. longa, calvcem + aequans, dentibus 6 aequalibus dehiscens; ovula c. 30. Semina vix matura c. 15, probabiliter rugulosa.

Key to Varieties

Leaves with the marginal vasculation no more developed than the extremely faint traces anastomosing throughout the lamina; sepals 3·5-4 mm. long var. antitaurica

Leaves with a distinct but very weak pair of marginal veins (not visible macroscopically); sepals 4-5 mm. long var. intermedia

var. antitaurica

TURKEY: Cataonia: prov. Maraş, distr. Göksun: Binboğa dağ in ravine above Yalak, 2200 m, rocks, 17 July 1952, Davis, Dodds & Çetik (D. 20130—holo. E, iso, K).

var. intermedia McNeill, var. nov.

A typo sepalis longioribus (4·5-5·5 mm.) venis marginalibus ceteris lateralibus anastomosantibus multo validioribus differt, venis lateralibus omnibus gracillimis ab oculo vix distinguendis.

TURKEY: Cataonia: in monte Nimrud Dagh prope vicum Kjachta districtus Mamuret-ül-Asis, in declivitatis septentr-occid. rupibus, substrato ealcareo: ca. 2000-2200 m.; 12 vii 1910, Handel-Mazzetti 2000 (sub Arenaria tmolea Boiss. cf. Ann. naturh. Hofmus. Wien xxvi, 149: 1912—holo. WID.

Arenaria uninervia McNeill, sp. nov.

Ab A. antitaurica McNeill, cui proxima, foliis multo latioribus et ramulis omnino sterilibus sub anthesi perpaucis vel nullis (rosulis sterilibus evolutis ex axillis foliorum ramorum floriferorum enregentibus) distinguenda; in forma foliorum ad A. creticam Spreng. accedit sed petiolis nullis, sepalis acutis vel acuminatis, petalis latioribus sepalis sesquilongioribus (nec ± duplo longioribus) facile distinguenda.

Herba perennis, pulvinata. Planta ex toto pilis brevibus glandulosis (et eglandulosis?) dense vestita. Caudex gracilis vel mediocriter crassus, 1-2.5 mm. diam., in caudiculos + fragiles numerosos foliis persistentibus mortuis superne obtectos transiens. Caudiculi ad 12 cm. longi in ramulos fere omnes floriferos abeuntes. Ramuli ad 4 cm. longi, foliis 3-6-jugis sub anthesi + aeque disjunctis praediti; folia ramulos steriles novellos vel rosulas saepe subtendentia. Folia matura superiora 5-11 mm, longa, ovato-lanceolata, latitudine 3-4-plo longiora, sessilia, apice acuta; folium costa prominenti praeditum, lamina venis lateralibus multis anastomosantibus tenuissimis (vix ab oculo distinguendis), eis ad marginem aliis non magis evolutis. Inflorescentia (1-)2(-3)-flora; bracteae infimae 2-5 mm. longae, anguste triangulares, membranaceo-marginatae, vel (in typo) foliosae sed minores; bracteae superiores breviores, 1-3 mm. longae, semper membranaceo-marginatae; pedicelli 3-10 mm. longi. Sepala c. 3-5-4 mm. longa, in forma et textura gradatim inaequalia, vix (in typo) vel aliquantum carinata sed vena mediana prominenti ad apicem percurrente, venis lateralibus (6-8) inconspicuis; sepalum extimum ovatum vel ovato-lanceolatum (latitudine 2-3-plo longius), acutum, margine angustius membranaceo excepto, herbaceum; sepalum intimum latius ovatum (latitudine 1.7-2-plo longius), apice obtusius (in typo), ad marginem latius membranaceum (0.4 mm. latum), ad basim subcrassius. Petala ovata vel ovato-lanceolata, 5-6 mm. longa, 2-25-2-75 mm. lata. Stamina 10, exteriora basi glandulis minutissimis praedita; filamenta 4 mm. longa; antherae 0.75 mm. longae. Ovarium globosum, 1.5 mm. diam.; styli 3 mm. longi. Capsula ignota.

TURKEY: Cataonia: Prov. Adana. distr. Feke: Bakir dağ nr. top of Sencan Dere, 2200 m., 30 June 1952, Davis, Dodds & Çetik (D.19413—holo. E, iso. K).

Arenaria speluncarum McNeill, nom. et stat. nov.

Syn.: A. graveolens Schreb. var. grandiflora Boiss., Fl. Orient. i, 701 (1867) ("β").

Species affinitatis incertae; floribus tenerrimis foliis caulinis suborbiculatis ad A. rotundifoliam et affines approximat, sed foliis acutis sepalis aliquanto prominenter nervatis inflorescentiis semper terminalibus recedit; fortasse affinis A. sippleae, quam habitu sepalis aliquanto prominenter nervatis revocat, sed foliis caulinis suborbiculatis capsula calycem excedente facile distinguenda. A speciebus orientalibus omnibus affinibus petalis sepalis fere duplo longioribus seminibus obscure reticulatis (nee papillosis nee punctatis) distinguitur.

Slender perennial herb, rather matted at the base, sparsely pubescent throughout. Stems ascending, up to 25 cm. long, bearing 4-8 pairs of leaves, occasionally branching below the inflorescence. Leaves thin, light green in colour, abruptly contracted at the base into a short distinct petiole (2-3 mm, long in the basal leaves, becoming progressively shorter up the stem); the middle stem leaves ± orbicular but with a broadly acute apex, the basal and upper leaves narrower but at least broadly ovate (up to twice as long as broad). Inflorescence very lax, 4-10-flowered; bracts small (c. 1-2 mm.) ovate, very much smaller than the uppermost leaves, pedicels long (1-3 cm.), slender. Sepals 3-3.5 mm. long, lanceolate, 3 times as long as broad, subacute with 3 rather prominent veins and a number (2-5) of indistinct ones. Petals oblanceolate, c. 6 mm. long and 2 mm, broad, Stamens 10; filaments 2.5-3 mm, long; anthers 0.5 mm. long. Capsule cylindrical, 5 mm. long, splitting to at least half-way by 6 equal valves. Seeds c. 12, 0.5-0.6 mm, long, with numerous small rectangular or orbicular "cells" on the testa (40-80\u03bc\u22cc. 40\u03bc) without any markings or protuberances. ("obscurely reticulate").

Type: TURKEY: Cilicia: In valle speluncarum supra Ermenek Isauriae— 1845 ("in rupibus Tauri, Isaurici"), Heldreich (as A. pubescens d'Urville var, grandiflora—holo, G. iso, E. K).

Arenaria angustifolia McNeill, sp. nov.

A speciebus orientalibus subgeneris Arenariae, praeter A. sabulineam, A. kotschyamam et aliquando A. libanoticam folis omnibus anguste linearibus distinctissima. Ab A. sabulinea habitu perenni et planta glabra, ab A. kotschyama folis uninerviis et habitu multo graciliore, et ab affini A. libanotica folis semper linearibus numquam lineari-spathulatis vel lanceolatis seminibus laeviusculis non fimbriatim marginatis facile distinguenda.

Herba perennis gracillima caespitosa. Planta ex toto glabra. Caudex ± gracilis, c. Imm. diam., in caudiculos gracillimos numerosos folisi vel basibus foliorum persistentibus mortuis praeditos abiens. Caudiculi 1−2 cm. longi in ramulos steriles breves (1−2 cm.) et floriferos longos (6−15 cm.) abeuntes. Ramuli inferne folisi 1−2 jugis approximatis superne folisi remotis 1−2 jugis (ramulis sterilibus) vel 4−5 jugis (ramulis floriferis) praediti. Folia uninervia, 4−15 mm. longa, linearia, latitudine 4−15−plo

longiora (ea caulina 6-15 mm. longa et latitudine 8-15-plo longiora). Inflorescentia ad 4 cm. longa floribus 1-6 instructa; bracteae anguste triangulares 1-3 mm. longae herbaceae; pedicelli 8-25 mm. longi, tenuissimi. Sepala ovata vel ovato-lanceolata, acuminata, 3-5-nervia (nervo mediano prominentiore), carinata, late membranaceo-marginata; sepalum extimum 2-5-3 (-3-25) mm. longum, ovato-lanceolatum, latitudine 2-75-3-plo longius; sepalum intimum brevius (ad 2-2 mm.) latitudine c. duplo longius), latius membranaceo-marginatum et frequenter tantum trinervium. Petala 3-75-4-5 mm. longa, ovata, latitudine c. 2-5-plo longiora. Stamina 10, exteriora basi glandulis minutissimis praedita; filamenta 2-5-3 mm. longa; antherae 0-4-0-5 mm. longae. Ovarium globosum; styli c. 1-5 mm. longa; caduci; ovula 20-30. Capsula 2-2-5 mm. longa, calyce brevior, dentibus vel valvis 6 acqualibus dehiscens. Semina c. 5-10, 0-5 mm. longa; cellulae haud prominentes mediam papillam minutissimam (c. 8µ longam) gerentes)

Turkey: Cilicia: Prov. Konya, distr. Ermenek (Cilicia Trachea): Hamitsaydi boğaz between Sarivadi and Beşkuyu; 1500-1700 m., mossy rocks, perennial, 16 March 1949, P. H. Davis 16227 (holo. E, iso. K).

Arenaria kurdica McNeill, sp. nov.

Ab affini A. pamphylica sepalis parvis trinerviis petala subaequantibus nervis lateralibus sepalorum ± marginalibus divergentibus capsula subglobosa et ab A. sabulinea foliis ovatis vel lanceolatis nec linearibus petalis minoribus facile distinguenda.

Herba annua humilis, ad 5 cm. alta. Planta ex toto pilis brevibus simplicibus vel glandulosis vestita. Folia 10-16 mm. longa, ovata vel ovato-lanceolata, in petiolum (3-4 mm. longum) sensim contracta, pauca, sub anthesi marcescentia. Inflorescentia divaricata, floribus 5-9 instructa; bracteae foliosae lanceolatae, infimae 8 mm. longae; pedicelli 4-7 mm. longi. Sepala 2-2.5 mm. longa, ovato-lanceolata vel lanceolata (extimum latitudine 2.5-3.5-plo longius), trinervia; nervi laterales nervo medio indistinctiores divergentes submarginales. Petala 2-2.5 mm. longa, lanceolata, apice brevissime bifido. Stamina 10; filamenta 0.5-0.8 mm. longa; antherae 0-2-0-3 mm. longae; granula 34-38µ diam. Capsula subglobosa (latitudine ad 1.25-plo longior), calycem vix excedens, valvis 6 dehiscens; ovula c. 15-25. Semina vix matura c. 12-18, probabiliter rugulosa. IRAQ: Erbil: Sefin Dagh above Shaqlawa, 1200 m.; oak forest formation, limestone crats (sic) N. aspect; flowers white; frequency occasional, 9 May 1947, J. B. Gillett (National Herbarium of Iraq 18076holo. K).

Arenaria angustisepala McNeill, sp. nov.

Species valde distincta, ab A. szowitsii et A. holostea foliis brevibus estaceis, non longis linearibus, sepalis angustioribus planta dense casepitosa humili caulibus minus quam 5 cm. altis 1(-2)-floris praeditis facile distinguenda; ab A. armeniaca, cui forma foliorum et sepalorum aliquantum approximat, glandulis staminum 5 indivisis floribus plerumque solitariis nec paucis dense congestis et praesertim habitu humili caespitoso differt.

Herba perennis, dense caespitosa vel subpulvinata, humilis, ad 6 cm. alta. $Caudex \pm gracilis$, 2-4 mm. diam., in caudiculos numerosos intortos

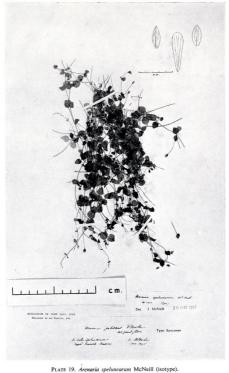




PLATE 20. Arenaria angustisepala McNeill (holotype).

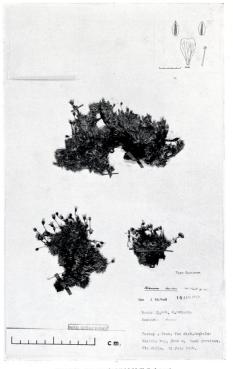
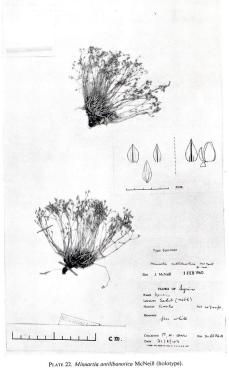


PLATE 21. Arenaria davisii McNeill (holotype).



var. glandulosa

transiens. Caudiculi 3-10 cm. longi, foliis persistentibus mortuis superne praediti, in rosulas steriles paucas et caules floriferos unum vel paucos abeuntes. Rosulae steriles superne parce (in typo) glanduloso-pubescentes foliis 4-7-jugis praeditae. Caules breves 3-5 cm. longi, foliis 3-5-jugis breviter (c. 0.75 mm.) connatis ± aequaliter disjunctis praediti. Folia setacea, 5-10 mm. longa et 0.3-0.6 mm. lata, apiculata, breviter ciliata et minute et parce puberula (eglandulis); omnia, pari caulino supremo excepto plerumque viridia, sed marginibus membranaceis angustis ad basim praedita; folia caulina suprema bracteis similia sed longiora et angustiora. Inflorescentia 1(-2)-flora (raro tertio rudimentario): bracteae lanceolatae longe acutae, c. 7 mm. longae et 2 mm. latae, carinatae, late scarioso-marginatae, glabrae; pedicelli 5-10 mm, longi dense glandulosopuberuli. Sepala glabra, + aequalia, lanceolata, c. 7.5 mm. longa et c. 2.5 mm. lata, carinata, acuta vel obtusa, carina excepta scariosa; carina herbacea, uninervia (vere nervis paucis conjunctis), ad basim 1 mm, lata, supra angustior, ad apicem percurrens. Petala oboyata vel spatulata truncata, 9-10 mm. longa et c. 4.5 mm. lata. Stamina 10, exteriora basi glandulis minutis praedita; filamenta c. 4 mm, longa; antherae c. 0.75 mm. longae. Ovarium ovoideum c. 2 mm. longum; styli c. 2.5 mm. longi; ovula c. 30. Capsula vix matura c. 6 mm. longa, valvis 6 aequalibus dehiscens. Semina ignota.

Key to Varieties

Sepals glabrous; c. 75 mm. long, all ovate lanceolate (outer and inner ± equal in size and shape); leaves eglandular-puberulent; stems glabrous or sparsely glandular-pubescent below; bracts glabrous; pedicels densely glandular-puberulent
var. angustisepala Sepals glandular-pubescent, 5:5-6 mm. long, outer narrowly lanceolate and inner ovate; leaves glandular-puberulent; stems densely glandular-pubescent throughout; bracts and pedicels densely glandular-puberulent.

var. angustisepala

TURKEY: Prov. Bitlis/Van: mt. 10 km. S.E. of Pelli, 2590 m., 8 July 1954, Davis & O. Polumin (D.22524 -holo. E, iso. K).

var. glandulosa McNeill, var. nov.

A typo puberulentia glandulosa foliorum caulibus ex toto et bracteis dense glanduloso-pubescentibus pedicellis glanduloso-pubescentibus (nec glanduloso-puberulis) sepalis brevioribus (5·5-6 mm.) gradatim inaequalibus glanduloso-pubescentibus differt.

Sepalum extimum anguste lanceolatum (latitudine c. 4-plo longius) aliquantum anguste scarioso-marginatum ex toto glanduloso-pubescens; sepalum intimum ovatum (latitudine c. duplo longius) latissime scarioso-marginatum, tantum in carina glanduloso-pubescens.

TURKEY: Prov. Van, dist. Gevaş: Artoş Dağ, 3048 m., rock crevices, fls. white, 15 July 1954, Davis & O. Polunin (D.22818—holo. E, iso. K).

Arenaria davisii McNeill, sp. nov.

Species valde distincta; caulibus floriferis brevibus non foliatis inflorescentiis glanduloso-pubescentibus plerumque unifloris et pedicellis sublongis sepalis subacutis petalis cuneatis bene notatur. Ab affini A.

tetrasticha sepalis longioribus et angustioribus foliis non scariosomarginatis etiam differt.

Herba perennis caespitosa vel subpulvinata. Caudex crassus, 10-15 mm. diam., in caudiculos numerosos lignosos contortos abiens. Caudiculi 2-9 cm. longi, 1-4 mm. diam., foliis persistentibus mortuis canis superne obtecti, in rosulas steriles et floriferas transeuntes. Rosulae foliis 3-6-jugis dense congestis instructae, saepe caulem floriferum brevem (1.5-2.5 cm.) non foliatum glanduloso-pubescentem gerentes. Folia brevia (4-10 mm.), subulato-setacea triquetra, apiculata; margines minute et parce hispiduli. Inflorescentia ex toto dense glanduloso-pubescentia, 1(-3)-flora; bracteae 2.5-3.5 mm, longae, lanceolatae, anguste acuminatae, scarioso-marginatae: pedicelli 10-15 mm. longi. Sepala purpurascentia, dense glandulosa, enervia (vena mediana indistincta et venis lateralibus 1-2-jugis indistinctissimis), 3-4 mm. longa; sepalum extimum lanceolatum, subacutum, anguste membranaceo-marginatum; sepalum intimum late ovatum, obtusum, latissime membranaceo-marginatum. Petala cuneata, 6-8 mm. longa, 2.5 mm. diam., calycem excedens, dentibus duplo stylorum exteriora basi glandulis minutis praedita; filamenta 3.75-4.5 mm. longa; antherae 0.7 mm. longae. Ovarium ovoideum, 4 mm. longum, 2 mm. diam.; styli (2-)3(-5), 2-2.25 mm. longi. Capsula longe ovoidea, 5-6 mm. longa, 2.5 mm. diam., calycem excedens, dentibus duplo stylorum numero dehiscens; ovula c. 15-30. Semina immatura.

TURKEY: Prov. Van, dist. Başkale: Ispiriz Dağ, 3400 m., rock crevices, fls. white, 31 July 1954, Davis & O. Polunin (D.23694—holo. E, iso. K).

Minuartia gracilis McNeill, sp. nov.

Species valde distincta, inter Sectionem Acutifloras petalis calycem vix excedentibus (nec multo longioribus) singularis; probabiliter M. biebersteini affinis sed sepalis brevioribus et pedicellis patentibus differt.

Planta gracilis laxe caespitosa glabra (praeter summos pedicellos). Caudiculi tenues 0.25-0.5 mm. diam. in caules floriferos transeuntes. (Caules steriles ut videtur absentes). Caules floriferi 10-15 cm. alti, jugis foliorum 3-5 turiones steriles 2-6 foliatos interdum subtendentibus praediti, inflorescentias terminales 3-5-floras nec non saepe laterales 1-2-floras gerentes. Folia anguste linearia 5-12 mm. longa trinervia. Inflorescentia laxissima inaequaliter dichasialis; bracteae anguste triangulares, herbaceae, prominenter trinerviae; pedicelli late patentes, 15-25 mm. longi, summi parce et minute glanduloso-puberuli. Sepala c. 2.5 mm. longa, lanceolata, acuminata, prominenter et ± aeque trinervia; extimum anguste lanceolatum (latitudine c. 5-plo longius) anguste membranaceo-marginatum; intimum lanceolatum (latitudine c. triplo longius) late membranaceo-marginatum. Petala lanceolata (nec oblanceolata) sepalis sublongiora. Stamina 10, filamenta 1-8-2 mm. longa; antherae flavae, 0.3-0.35 mm. longae et c. 0.25 mm. latae. Styli 3. Capsula anguste ovoidea calyce excedens ad apicem in valvis (3-)4 dehiscens (capsula immatura lineis dehiscentiae tantum 3 praedita). Semina (immatura) ut videtur c. 0.6 mm. diam. obscure tuberculata, prominenter papillosa vel echinata.

TURKEY: Paphlagonia: Prov. Kastamonu: Küre—Inebolu, 2400 ft. [730 m.], ledges of metamorphic rocks, fl. white, 7 June 1954, *Davis* 21616 (holo. E, iso. K).

Minuartia antilibanotica McNeill, sp. nov.

Species valde distincta; a speciebus aliis seriei Setacearum Mattf. planta inferne dense tomentosa facile distinguenda; a M. anatolica var. arachnoidea, probabiliter affini, planta superne omnino glabra calycibus ad basim rotundatis nec truncatis differt.

Planta humilis ad 9 cm. alta. Caudex crassus, c. 5 mm. diam., caudiculos numerosos coarctatos emittens. Caudiculi ad 2 mm. diam., breves, in caules floriferos abeuntes. Caules steriles sub anthesi deficientes; caules floriferi foliis mortuis 3-5-jugis congregatis et superne foliis viridibus 2-4-jugis remotis praediti; caules inferne et margines foliorum inferiorum pilis tenuibus albis bombycinis dense vestiti. Folia subulato-setacea 2-4 mm. longa; folia inferiora turiones incipientes (non comparentes) sub anthesi subtendentia. Inflorescentia ex toto glabra, laxissima, 6-10-flora; bracteae subulatae vel triangulares, ± late membranaceo-marginatae; pedicelli infimi c. 10 mm, longi: ultimi (flore maturo) 3-5 mm, longi, Senala ovata. latitudine 2-2.5-plo longiora, longe acuta vel subacuminata, 2.5-3 mm. longa. Petala lanceolata, latitudine c. 3.5-plo longiora, cuneata, sepalis subaequilonga. Stamina fertilia: filamenta c. 2 mm. longa: antherae c. 0.5 mm. longae. Capsula ovoidea c. 2.5 mm. longa; valvae 1.3-1.5 mm. latae, ovula 12-18, Semina 6-10, subrotundata, c. 0.65 mm, diam., obscure tuberculata, epapillosa.

SYRIA: Damascus: Antilebanon: Sahel (above Nebk), rocks, 1430 m., flrs. white, 21.6.1943, P. H. Davis 6586A (holo, E, iso, K).